

The 9th Annual International Conference on

DOSE-RESPONSE 2010:

Implications for Toxicology, Medicine, and Risk Assessment

*The Annual Meeting of the
International Dose-Response Society*

April 27-28, 2010

University of Massachusetts, Amherst, MA

Conference Directors: Edward J. Calabrese, Ph.D., Paul Kostecky, Ph.D.

**THRESHOLD • ADAPTIVE • BIDIRECTIONAL • BIPHASIC
HORMETIC • NON-MONOTONIC • U/J-SHAPED • PARADOXICAL**

Continuing Education Credits will be offered through the University of Massachusetts pending approval

DEAR COLLEAGUE,

The Dose-Response Conference addresses some of the most critical challenges facing the field of toxicology, pharmacology, radiation biology and medicine today, that is, the significance of the biological effects of low level exposures. Toxicology is in rapid transition from that of a high dose hazard assessment profession to one that addresses the nature of more realistic exposures, which are predominantly in the low dose zone. Knowledge of low dose effects is becoming a driving force in the field of risk assessment and chemotherapeutics. This conference provides a significant opportunity to bring together leading scientists across a broad range of biological disciplines to seek common understandings on how biological systems respond to low level stresses and their implications within society. One of the critical goals of the conference is to recognize that professionals in different fields of biology have utilized different terminologies for similar appearing dose response phenomena. These terms include adaptive, bidirectional, dual effects, opposite effects, biphasic, hormetic, non-monotonic, u-shaped, j-shaped, and paradoxical. The convergence of scientists from multiple disciplines on this topic is designed to provide a greater interactive focus on the topic of low dose responses and hopefully prevent further professional/academic isolation with respect to language, concept and interpretation of low dose effects. The conference will also provide the most current advances in the nature of the dose response with respect to chemical and radiation induced stresses as well as a host of effects of pharmaceutical agents that have profound biomedical and risk assessment implications. It is our hope that you share the belief that determining the nature of the dose response in the low-dose zone will drive the future of toxicology, pharmacology and risk assessment and will take the opportunity to attend this conference on

DOSE-RESPONSE 2010: IMPLICATIONS FOR TOXICOLOGY, MEDICINE, AND RISK ASSESSMENT

Edward J Calabrese, Ph.D.

Paul T. Kostecki, Ph.D.

Conference Directors

INTERNATIONAL DOSE-RESPONSE SOCIETY

A growing number of scientists, including toxicologists, pharmacologists, biostatisticians, epidemiologists, occupational and environmental medical researchers and others have begun to display considerable interest in the topic of hormesis, a dose response phenomenon characterized by a low dose stimulation and a high dose inhibition. While there are many professional societies that have a general interest in dose response relationships, none explicitly is devoted to the topic of understanding the nature of the dose response in general and hormesis in particular. The diversity of professional societies that may consider dose response issues, including hormesis, is nonetheless quite broad ranging from the agricultural to the biomedical and clinical sciences. However, nearly without exception, these societies tend to be strongly organized around professional advancement and not focused on specific scientific concepts. This makes the issue of hormesis one of diffuse interest across a broad range of professions. The present situation represents a major obstacle for the integrated assessment of the dose response in general and hormesis in particular. In order to provide intellectual and research leadership on the topic of hormesis, a new professional association has been created called the International Dose-Response Society.

The Society is dedicated to the enhancement, exchange, and dissemination of ongoing global research efforts in the field of hormesis. In addition, the Society also strongly encourages the assessment of the implications of hormesis for such diverse fields as toxicology, risk assessment, risk communication, medicine, numerous areas of biomedical research, and all other biological disciplines including relevant engineering domains dealing with the dose response.

The International Dose-Response Society is administered by the School of Public Health & Health Sciences at the University of Massachusetts at Amherst.

If you would like additional information about the society including information on becoming a member, please contact Alfred Sorensen at sorensen@ehs.umass.edu or visit the society webpage www.dose-response.org.

INTERNATIONAL DOSE-RESPONSE SOCIETY MEMBERSHIP

The INTERNATIONAL DOSE-RESPONSE SOCIETY is a professional society designed to enhance understanding of the nature of the dose response and its implications for science and society. Those Individuals with a professional interest in these areas are invited to join the Society. Applications for membership can be found at www.dose-response.org. Annual membership rates are as follows: Corporate Membership \$5000 (US), Sustaining Membership \$1000 (US), Individual Membership - 1yr. \$125 (US), Individual Membership - 2yr. \$225 (US), Retiree Membership - 1yr. \$75 (US), Retiree Membership - 2yr. \$125 (US), Post-Graduate Membership (up to three years post-graduation) - 1yr. \$75 (US), Post-Graduate Membership (up to three years post-graduation) - 2yr. \$125 (US), Student Membership - 1yr. \$10 (US) and Student Membership - 2yr. \$15 (US).

As part of the INTERNATIONAL DOSE-RESPONSE SOCIETY membership, each member will receive a subscription to the e-journal Dose-Response, which is a peer-reviewed quarterly journal. In addition, there is a Society Newsletter developed for the membership. Members will receive a 25% reduction in registration fees to Dose-Response 2010: Implications for Toxicology, Medicine, and Risk Assessment, the Annual Meeting of the International Dose-Response Society.

To Become a Member, Visit
www.dose-response.org

PLATFORM PRESENTATIONS

TUESDAY, APRIL 27, 2010

8:15AM - 5:30pm

Session I: PLENARY SESSION

Hormesis: Its Integration into the Risk Assessment Process
Steve Lewis, *Integrative Risk Management, Annandale, NJ*

Default Low-Dose Linearity for All Endpoints? Implications for Risk Assessment and Risk Management
Lorenz Rohmberg, *Gradient Corporation, Cambridge, MA*

Hormesis and Regulatory Risk Assessment
George Gray, *Former Assistant Administrator, Office of Research and Development, EPA*

Session II: TOXICOLOGY/RISK ASSESSMENT SESSION

No Genotoxic Consequences of Daily Doses of EMS Inducing up to 380'000 DNA-Alkylations/Cell/Day
Elmore Gocke, Lutz Müller, Thomas Pfister, Thierry Lavé, *F. Hoffmann-La Roche Ltd, Basel, Switzerland*

Generic Hockey-Stick Model for Unbiased Benchmark-dose and Net-potency Estimation
Kenneth T. Bogen, *Exponent, Oakland, CA*

The Alcohol and NPC Meta-Analysis in the Context of other Dose-Response Relationships vs. Alcohol and other Outcomes
Eliseo Guallar, *Johns Hopkins University, Baltimore, MD*

Agriculture, Insects and Hormesis: Evidence and Challenges for Study
G. Christopher Cutler, *Nova Scotia Agricultural College, Truro, NS*

Hormesis at the Population Level: an Experiment with Four Competing Zooplanktonic Cladocerans in Acidic Conditions
Rui Ribeiro, *Departamento de Zoologia, Universidade de Coimbra Largo Marquês de Pombal, Portugal*

Exposure to Nanoparticles and Hormesis
Ivo Iavicoli, *Catholic University of Sacred Heart, Roma, Italy*
Marc Nascarella, *Gradient, Cambridge, MA*
Edward Calabrese, *University of Massachusetts, Amherst, MA*

Stochastic Threshold Microdose Model for Cell Killing by Insoluble Metallic Nanomaterial Particles
Bobby R. Scott, *Lovelace Respiratory Research Institute, Albuquerque, NM*

A New Platform Technology for the Self-Assembly of 3D Living Microtissues
Jeffrey R. Morgan, *Brown University, Providence, RI*

Session III: BIOMEDICAL SESSION

Hormesis and Exercise: Support for an Inverted-U Response to Acute and Chronic Work
Bradley D. Hatfield, *University of Maryland, College Park, MD*

The Use of Modified Streptolysin O to Induce Accelerated Wound Healing and Connective Tissue Repair
Volken M. Gurel, *Beech Tree Labs, Inc., Providence, RI*
Marjana Tomic, *University of Miami, Miami, FL*
Stephen Mamber, *USDA Food Safety and Inspection Service, Washington, DC*
John McMichael, *Beech Tree Labs, Inc., Delanson, NY*

SOCIAL & DINNER

6:30PM

WEDNESDAY, APRIL 28, 2010

8:00AM - 5:00pm

Session III: BIOMEDICAL SESSION

(continued)

Low-dose Cardiotoxic Steroids Increase Sodium-potassium ATPase Activity that Protects Hippocampal Slice Cultures from Experimental Ischemia

Peter Bergold, *SUNY-Downstate Medical Center, Brooklyn, NY*

Methamphetamine Preconditioning Causes Changes in Striatal Transcriptional Responses to Large Doses of the Drug

Jean Lud Cadet, Christie Brannock, Bruce Ladenheim, Michael T. McCoy, and Irina N. Krasnova, *Molecular Neuropsychiatry Research Branch, DHHS/NIH/NIDA Baltimore, MD*

Brain Adaptation and Hormesis

Jun Chen, *Uniformed Services University of the Health Sciences, Bethesda, MD*

Robert H. Lipsky, *Inova Fairfax Hospital, Falls Church, VA*
Anabel Pérez-Gómez, Angeles Torrelblaca, David Cabrera, Maria Teresa Fernández-Sánchez, Antonello Novelli, *University of Oviedo, Oviedo, Spain*

Ann Marini, *Uniformed Services University of Health Sciences, Bethesda, MD*

Cognitive Activation by Deep Brain Stimulation: The Yerkes-Dodson Law Revisited

Ronald Mair, *University of New Hampshire, Durham, NH*

Cortisol Exhibits Bi-Directional Control of Human Inflammatory Responses in Vivo

Mark P. Yeager, *Dartmouth-Hitchcock Medical Center, Lebanon, NH*

Patricia A. Pioli, Paul M. Guyre, *Dartmouth Medical School, Hanover, NH*

U-Shaped Dose Responses and Antitumor Activity

Kashi Javaherian, *Harvard Medical School, and Tufts University School of Medicine, Boston, MA*

Hormetic Response to Lifelong Mitochondrial Oxidative Stress

Sano Motoaki, *Keio University School of Medicine, Tokyo, Japan*

Session IV: RADIATION SESSION

H2AX as a Biodosimeter

William Bonner, *NIH, Bethesda MD*

Epidemiological Evidence for Possible Radiation Hormesis from Residential Radon Exposure: A Case-Control Study Conducted in Worcester County, MA

Richard Thompson, *Johns Hopkins University, Baltimore, MD*

Radiation-Induced Non Targeted Effects of Low Doses – What, Why and How?

Carmel Mothersill, Colin Seymor, *McMasters University, Hamilton, Ontario, Canada*

Radiation Hormesis and Policy Considerations

Colin Seymor, *McMasters University, Hamilton, Ontario, Canada*

Why CT Scans are Like Exercise and Can Reduce Cancer Risk

Douglas Boreham, *McMasters University, Hamilton, Ontario, Canada*

Possible Mechanisms for Bio-positive Effects from Exposure to Low-Dose Ionizing Radiation

Brenda Laster, *Ben Gurion University, Beer Sheva, Israel*

CONFERENCE CONTINUING EDUCATION CREDITS

Approval is pending from the University of Massachusetts Department of Continuing and Professional Education.

CPEUs will be awarded at the rate of one credit per 10 hours of successful conference attendance.

Those applying for CPEUs from the University of Massachusetts must

- 1) check off the box on the conference registration form in this booklet and include the \$50 fee,
- 2) record their attendance by signing in and out at the session and workshop doors with a picture ID and
- 3) fill out and return the UMass registration form that will be included in the conference registration packet you will receive at conference check in.

Transcripts will be mailed in June.

CALL FOR POSTERS

We invite you to submit an
ABSTRACT
for poster presentation at
*The 9th Annual International
Conference on*
**DOSE-RESPONSE 2010:
IMPLICATIONS FOR
TOXICOLOGY, MEDICINE,
AND RISK ASSESSMENT**

*Sponsored by
The Annual Meeting of the
International Dose-Response Society*

APRIL 27-28, 2010

University of Massachusetts at Amherst

The conference will address a multidisciplinary and mechanistic focus in toxicology, medicine, pharmacology, radiation, risk assessment for dose-response relationships.

Please visit conference website

www.dose-response.org

For abstract submission guidelines as well as information about the conference and the Dose-Response society

Or email Conference Coordinator,
Denise Leonard at

dleonard@schoolph.umass.edu

Deadline for abstract submissions for the Dose-Response 2010 Conference poster session is April 12, 2010.

DEADLINE FOR SUBMISSION
April 12, 2010

E-mail to dleonard@schoolph.umass.edu

CALL FOR PAPERS

DOSE-RESPONSE:
An International Journal

*Dose-Response is indexed in Pub Med,
Web of Science and most other indexes.*

AREAS OF INTEREST

- *Adaptive • Bidirectional • Biphasic*
 - *Hormetic • Non-Monotonic*
 - *Yerkes-Dodson Law (Psychology) • U-Shaped*
 - *J-Shaped • Subsidy-Stress Gradient (Ecology)*
 - *Reverse Dose-Responses*
-
- Molecular mechanisms
 - Pharmacological effects
 - Chemical and radiation toxicology
 - Risk assessment implications
 - Low-dose modeling
 - Evolutionary foundations
 - Ecological effects
 - Clinical/therapeutic effects
 - Psychological/behavioral responses
 - Bioengineering processes
 - Exercise science
 - Epidemiology of low doses
 - Industrial hygiene
 - Legal implications

*Please visit our website for more Information
and Instructions for Authors*

www.dose-response.com

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University of Massachusetts
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dleonard@schoolph.umass.edu

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R E G I S T R A T I O N F O R M

To Register: Form should be received on or before **April 12, 2010** with full payment.

Mail or fax to: **University Conference Services - CS10-63**

918 Campus Center

University of Massachusetts

Amherst, MA 01003

Phone: 413-577-8102 • Fax: 413- 577-8130

Mr. Mrs. Ms. Dr.

First: _____ MI: _____ Last: _____

Title: _____ Company: _____

Address: _____

City: _____ State: _____ Zip: _____ Country: _____

Telephone: _____ Fax: _____

Email: _____

For Office Use _____
Case No. _____
Ref. No. _____
Date _____
Payment _____
Confirmed _____

Registration: Includes all sessions and refreshment breaks

Full Two Days \$399

Full Two Days for International Dose-Response Society Members* \$299

Government and Academic Rate..... \$199

Government and Academic Rate for International Dose-Response Society Members*..... \$149

Student Rate..... \$99

Student Rate for International Dose-Response Society Members*..... \$74

*Must be a member at the time of registration to receive the International Dose-Response Society Members rate

Conference Continuing Education Credits: Approval is pending from the University of Massachusetts Department of Continuing and Professional Education. CPEUs will be awarded at the rate of one credit per 10 hours of successful conference attendance. Those applying for CPEUs from the University of Massachusetts must 1) record their attendance by signing in and out at the session and workshop doors with a picture ID and 2) fill out and return the registration form that will be included in the conference registration packet you will receive at conference check in. Transcripts will be mailed in June.

CEU Credits Administrative Charge (for UMass Continuing and Professional Education Credits)..... \$50

Hot Buffet Lunch: \$25 each day Tuesday Wednesday

Hot Buffet Dinner: \$35 Tuesday

Note: All registrations received after **April 12, 2010**, will be assessed a \$50 late fee

Sub Total _____

Lunch Total _____

Dinner _____

Late Fee _____

Total _____

Visa Amex Master Card Diners Discover Check payable to: UMass/Conference Services CS10-63

Card Number: _____ Expiration Date: _____

Name on Card (print): _____

Signature (all charges must be signed): _____

Hotel Reservations: CONFERENCE ATTENDEES ARE RESPONSIBLE FOR THEIR OWN HOTEL RESERVATIONS

Encumbered Purchase Orders will be accepted from institutions and agencies for the purpose of pre-registration only. Full payment including those pre-registrations secured by P.O. must be remitted at the on-site registration. Non-compliance will result in a \$35 processing fee for any resulting billings. Phone in registrations will not be accepted. Cancellations made on or before April 16, 2010 will receive a full refund minus a \$35 cancellation fee. Cancellations after April 16, 2010 will be charged the \$35 cancellation fee plus any food service charge. Checks must be redeemable at US banks. Any processing fees will be billed to registrant. In order to process refunds we will need your personal social security number or your business identification number. There will be no refunds for cancellations made after April 20, 2010.

For more conference information contact: INTERNATIONAL DOSE-RESPONSE SOCIETY

Phone: 413-545-3164 • Fax: 413-545-4692 • Email: dleonard@schoolph.umass.edu

A107121
University Conference Services CS10-63
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AREA HOTEL INFORMATION Registrants are responsible for making their own hotel arrangements. (We recommend you make reservations early)

Amherst	Single/Double	Hadley	Single/Double
Allen House Inn (413) 253-5000	\$75-150	Econo Lodge (413) 582-7077	\$79-149
Amherst Motel (413) 256-8122	\$59-85	Hampton Inn (413) 586-4851	\$119-179
Black Walnut Inn (413) 549-5649	\$108-159	Holiday Inn Express (413) 582-0002	\$119-200
Campus Center Hotel (UMass) (413) 549-6000	\$102-134	Howard Johnson (413) 586-0114	\$85-179
Lord Jeffrey Inn (413) 253-2576	\$129-259	Norwottuck Inn (413) 587-9866	\$159-179
University Motor Lodge (413) 256-8111	\$70-150	Quality Inn (413) 584-9816	\$69-145
Deerfield	Single/Double	Northampton	Single/Double
Deerfield Inn (413) 774-5587	\$170-270	Autumn Inn (413) 584-7660	\$99-180
Red Roof Inn (413) 665-7161	\$75-125	Best Western (413) 586-1500	\$69-149
Holyoke	Single/Double	Clarion Hotel (413) 586-1211	\$100-235
Country Inn & Suites (413) 533-2100	\$89-189	Hotel Northampton (413) 584-3100	\$145-180
Holyoke Holiday Inn (413) 534-3311	\$120-150		

* For those attendees wishing to stay at the Campus Center Hotel where the conference will be held, telephone the hotel directly at (413) 549-6000. IDENTIFY THE CONFERENCE AS HOTEL BLOCK 1809.

University Conference Services does not guarantee the accuracy of any of the rates listed above. (Updated 6/2009)

LOCATION AND TRAVEL INFORMATION

The conference will take place in the Murray D. Lincoln Campus Center, University of Massachusetts at Amherst, located in the scenic Connecticut River Valley. Amherst is served by major airlines through Bradley International Airport in Windsor Locks, Connecticut (about 1 1/4 hours by car) and Logan Airport in Boston (about 2 1/2 hours by car). Rental cars and bus service are available from both airports.

There are two services that provide shuttle service to and from both airports, Amtrak and bus stations to the University of Massachusetts - Seemo Shuttle Service and Valley Transporter.

Seemo Shuttle Service - call (800) 908-2829 or (413) 586-1120 or visit www.seemoshuttle.com

The Valley Transporter - RESERVATIONS ARE REQUIRED, call (800) 872-8752 or (413) 253-1350 or visit www.valleytransporter.com.

REGISTRATION

All Registrations for the conference must be received by the University Conference Services no later than April 12, 2010 in order to avoid late registration fee of \$50.

To register for the conference please fill out and return the accompanying registration form to:

**University Conference Services - CS10-63
918 Campus Center
University of Massachusetts
Amherst, MA 01003
Phone: 413-577-8102; Fax: 413- 577-8130**

For further information contact us at:
**INTERNATIONAL DOSE-RESPONSE SOCIETY
Phone: 413-545-3164; Fax: 413-545-4692
Email: dleonard@schoolph.umass.edu
www.dose-response.org**

FOR CONFERENCE INFORMATION Please contact the conference coordinator: **Denise Leonard 413-545-1239**